

CLAIMS

What is claimed is:

- 1 1. A method, comprising:
 - 2 loading content stored on a data storage unit (“DSU”) of a processing system into
 - 3 system memory of the processing system to boot the processing system;
 - 4 recording source locations of the content stored on the DSU; and
 - 5 generating a pre-fetch profile to store the source locations.
- 1 2. The method of claim 1 wherein the loading the content, the recording the
- 2 source locations, and the generating the pre-fetch profile all occur during a pre-boot
- 3 runtime of the processing system.
- 1 3. The method of claim 1 wherein recording the source locations comprises
- 2 recording the source locations of the content stored on the DSU only if a profile variable
- 3 is set and wherein generating the pre-fetch profile comprises generating the pre-fetch
- 4 profile to store the source locations only if the profile variable is set.
- 1 4. The method of claim 3, further comprising clearing the profile variable after
- 2 generating the pre-fetch profile.

1 5. The method of claim 1 wherein the content comprises applications executed by
2 the processing system during a boot-up phase prior to an operating system taking control
3 of the processing system.

1 6. The method of claim 5 wherein the content includes at least one of an
2 operating system (“OS”) loader, an OS kernel, and a device driver.

1 7. The method of claim 1, further comprising storing the pre-fetch profile to
2 nonvolatile memory of the processing system.

1 8. The method of claim 1, further comprising:
2 storing the pre-fetch profile to a pre-fetch profile library; and
3 indexing the pre-fetch profile within the pre-fetch profile library to a particular
4 operating system, the pre-fetch profile library including at least one other pre-fetch
5 profile indexed to another operating system.

1 9. The method of claim 1, further comprising:
2 loading the content stored on the DSU into system memory multiple times to boot
3 the processing system multiple times; and
4 recording the source locations of the content stored on the DSU multiple times,
5 wherein generating the pre-fetch profile to store the source locations comprises
6 generating the pre-fetch profile based on a probability density function of the multiple
7 recordings of the source locations.

1 10. The method of claim 9 wherein the probability density function is further
2 based on one of Bayesian learning and k-means.

1 11. A machine-accessible medium that provides instructions that, if executed by a
2 machine, will cause the machine to perform operations comprising:
3 loading content stored on a data storage unit (“DSU”) of a processing system into
4 system memory of the processing system to boot the processing system;
5 recording source locations of the content stored on the DSU; and
6 generating a pre-fetch profile to store the source locations.

1 12. The machine-accessible medium of claim 11, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein the loading the content, the recording the source locations, and the generating the
4 pre-fetch profile all occur during a pre-boot runtime of the processing system.

1 13. The machine-accessible medium of claim 11, further providing instructions
2 that, if executed by the machine, will cause the machine to perform further operations,
3 comprising:
4 storing the pre-fetch profile to a pre-fetch profile library; and
5 indexing the pre-fetch profile within the pre-fetch profile library to a particular
6 operating system, the pre-fetch profile library including at least one other pre-fetch
7 profile indexed to another operating system.

1 14. A method, comprising:
2 determining when a processor of a processing is in one of a busy wait state and an
3 idle state during a pre-boot runtime of the processing system;
4 pre-fetching content from a data storage unit (“DSU”) of the processing system,
5 the content pre-fetched based upon a pre-fetch profile; and
6 loading the content into system memory of the processing system.

1 15. The method of claim 14 wherein pre-fetching the content comprises pre-
2 fetching the content during a period of time that the processor would otherwise be in one
3 of the busy wait state and the idle state during the pre-boot runtime.

1 16. The method of claim 14 wherein loading the content into system memory
2 comprises loading the content into temporary boot memory within system memory.

1 17. The method of claim 16, further comprising copying a portion of the content
2 from the temporary boot memory into runtime memory within system memory.

1 18. The method of claim 17 wherein copying the portion of the content from the
2 temporary boot memory into the runtime memory comprises copying the portion of the
3 content from the temporary boot memory into the runtime memory in response to a
4 request that the portion of the content be loaded from the DSU.

1 19. The method of claim 14 wherein the content comprises applications executed
2 by the processing system during a boot-up phase prior to an operating system taking
3 control of the processing system.

1 20. A machine-accessible medium that provides instructions that, if executed by a
2 machine, will cause the machine to perform operations comprising:
3 determining when a processor of a processing is in one of a busy wait state and an
4 idle state during a pre-boot runtime of the processing system;
5 pre-fetching content from a data storage unit (“DSU”) of the processing system,
6 the content pre-fetched based upon a pre-fetch profile; and
7 loading the content into system memory of the processing system.

1 21. The machine-accessible medium of claim 20, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein pre-fetching the content comprises pre-fetching the content during a period of
4 time that the processor would otherwise be in one of the busy wait state and the idle state
5 during the pre-boot runtime.

1 22. The machine-accessible medium of claim 20, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein loading the content into system memory comprises loading the content into
4 temporary boot memory within system memory.

1 23. The machine-accessible medium of claim 22, further providing instructions
2 that, if executed by the machine, will cause the machine to perform further operations,
3 comprising copying a portion of the content from the temporary boot memory into the
4 runtime memory in response to a request that the portion of the content be loaded from
5 the DSU.

1 24. A processing system, comprising:
2 a processor;
3 system memory communicatively coupled to the processor;
4 a data storage unit ("DSU") communicatively coupled to the processor and the
5 system memory; and
6 a flash memory unit communicatively coupled to the processor, the flash memory
7 unit having stored therein a prefetcher agent to request a preemptive load of content from
8 the DSU to the system memory during a pre-boot runtime of the processing system, the
9 prefetcher agent to request the preemptive load of the content based on a pre-fetch
10 profile.

1 25. The processing system of claim 24, further comprising the flash memory unit
2 having stored therein a pre-fetch variable, the pre-fetch variable to indicate to the
3 prefetcher agent whether to request the preemptive load of the content.

1 26. The processing system of claim 24, further comprising the flash memory unit
2 having stored therein a profiler agent to generate the pre-fetch profile by recording source

3 locations of the content loaded into the system memory during an initial boot of the
4 processing system.

1 27. The processing system of claim 26, further comprising the flash memory unit
2 having stored therein a profile variable to indicate to the profiler agent to record the
3 source locations during the initial boot.

1 28. The processing system of claim 24, further comprising the flash memory unit
2 having stored therein an input/output (“I/O”) agent to preemptively load the content from
3 the DSU to the system memory responsive to the prefetcher agent and to load other
4 content from the DSU to the system memory responsive to application programs.

1 29. The processing system of claim 28 wherein the application programs include
2 at least one of an operating system (“OS”) loader, an OS kernel, and a device driver.

1 30. The processing system of claim 28 wherein the I/O agent further to
2 preemptively load the content into temporary boot memory in the system memory
3 responsive to the prefetcher agent.

1 31. The processing system of claim 30 wherein the I/O agent further to copy a
2 portion of the content from the temporary boot memory to runtime memory in the system
3 memory in response to a request from one of the application programs to load the portion
4 of the content from the DSU.